

Applicants : Scott D. Brandenburg et al.  
Appln. No. : 10/624,063  
Page : 9

### **REMARKS**

Claims 1-21 remain present and are rejected in this application. By way of this Amendment, the drawings and claims 1, 4, 6, 8, 9, 13, 15, and 16 have been amended. Applicants respectfully request reconsideration and allowance of the present application.

Applicants wish to thank Examiner Dinh and Supervisory Examiner Cuneo for the courtesies extended to Applicants' attorney, Jeffrey Johnson, during telephonic interviews conducted on Friday, June 16, 2006, and Monday, June 19, 2006. During the interviews, the objection to the drawings was discussed. In addition, independent claims 1 and 9 were discussed with respect to the rejection based on U.S. Patent No. 5,434,750, issued to Rostoker et al. (hereinafter "Rostoker et al."). As suggested by the Examiner and the Examiner's Supervisor, Applicants have provided a new cross-sectional drawing, Fig. 2B, to show the elements recited in the specification and claims that the Examiner indicated were missing from the drawings. No agreement was reached with respect to the rejection of independent claims 1 and 9 based on Rostoker et al.

In the present non-final Office Action, the Examiner objected to the drawings under 37 C.F.R. § 1.83(a) for failing to show "the PCB including a plurality of conductive layers each separated by a non-conduct [sic] layer," and "at least one conductive trace of the PCB plated through holes." Applicants have amended the drawings and provided an additional drawing (Fig. 2B), such that the drawings now show the PCB including a plurality of conductive layers, each separated by a non-conducting layer, and a second portion of a bus structure of the PCB coupling contacts to at least one conductive trace of the PCB through plated holes. Because these elements were already disclosed in the claims and specification, the changes made to the drawings do not introduce new matter. Applicants respectfully submit that, with these changes, the drawing objection is now moot and the drawings are in condition for acceptance. Therefore, Applicants respectfully request that the objection to the drawings be withdrawn.

Applicants : Scott D. Brandenburg et al.  
Appln. No. : 10/624,063  
Page : 10

In the present Office Action, the Examiner also rejected claims 1, 5-6, 8-9, and 15 under 35 U.S.C. § 102(b) as being anticipated by Rostoker et al.; rejected claims 2-4, 10-13, 16-19, and 21 under 35 U.S.C. § 103(a) as being unpatentable over Rostoker et al., in view of U.S. Patent 6,579,105, issued to Keyser (hereinafter "Keyser"); and rejected claims 7, 14, and 20 under 35 U.S.C. § 103(a) as being unpatentable over Rostoker et al., in view of U.S. Patent No. 6,054,754, issued to Bissey (hereinafter "Bissey"). Applicants respectfully traverse these rejections for the reasons presented below.

Before discussing the rejected claims and the applied references, it is important to appreciate Applicants' claimed invention and the advantages realized therefrom. The invention provides for a printed circuit board (PCB) assembly that includes a PCB and a first integrated conductive bus structure extending from a first edge of the PCB. The PCB connects a plurality of electronic components and includes a plurality of conductive layers, each separated by a non-conductive layer. The first integrated conductive bus structure includes a first portion that extends from the first edge of the PCB and which forms a plurality of electrically separate contacts of a connector. A second portion of the bus structure is integrated within the PCB and couples contacts of the connector to at least one conductive trace of the PCB through plated holes. Among other advantages, the invention provides for a PCB assembly that can be connected to an external bus with a reduced amount of PCB area required for the connection.

In regard to the rejection of claims 1, 5-6, 8-9, and 15 under 35 U.S.C. § 102(b) as being anticipated by Rostoker et al., Applicants respectfully submit that in order for a reference to anticipate a claim, the reference must teach each and every claim limitation. At the outset, Applicants note that Rostoker et al. is primarily directed to a dambar-less leadframe that is sandwiched between two printed circuit boards (PCBs).

Referring specifically to amended independent claims 1 and 9, Rostoker et al. does not appear to teach "a second portion of the bus structure that is laminated into the PCB as an internal layer of the PCB." The Examiner urges that item 108 of Fig. 2 of Rostoker et al. is "a second portion (inner 108) of the bus structure that is integrated

Applicants : Scott D. Brandenburg et al.  
Appln. No. : 10/624,063  
Page : 11

within the PCB.” However, referring to col. 9, lines 14-38 of Rostoker et al., it is clear that item 108, as shown in Fig. 2, is “fine gauge leads” of a leadframe 102 that is sandwiched between two separate PCBs—“an upper PCB (or substrate) 104 and a lower PCB (or substrate) 106.” Therefore, item 108 of Rostoker et al. does not appear to be “a second portion of the bus structure that is laminated into the PCB as an internal layer of the PCB,” as specified in amended independent claims 1 and 9. For at least this reason, amended independent claims 1 and 9 are not anticipated by Rostoker et al., and should be allowable. Because dependent claims 2-8 and 10-15 depend from allowable amended independent claims 1 and 9, respectively, dependent claims 2-8 and 10-15 should also be allowable for at least this reason.

With respect to the rejection of dependent claim 5 and independent claim 9, the Examiner urges that “the assembly is overmolded with a plastic material (916 or 1016, see figures 9-10), the portion of the plastic material (906) formed a connector housing (the encapsulation plastic body 906) and surround the contacts of the connector (leadframe).” However, this appears to be inconsistent with the embodiments generally illustrated in Figs. 1-2, and relied on by the Examiner to provide other elements of dependent claim 5 and independent claim 9. More specifically, referring to the embodiments generally illustrated in Figs. 1-2, Rostoker et al. states in col. 11, lines 56-59, “[h]ence, it is seen that molding of plastic is done around the chip only, and a central portion of the PCB 106. The molding compound (plastic) **does not contact the leadframe.**” (Emphasis added). Rostoker et al. further states in col. 11, lines 67 through col. 12, line 3, “[b]y molding only a small portion of the package body, the amount of plastic molding compound required is reduced, allowing a high degree of flexibility in mold gate design and diminishing wire wash problems.”

Based on the above sections of Rostoker et al., it would appear that the embodiments relied on by the Examiner for teaching “a first integrated conductive bus structure (102) extending from a first edge of the PCB (104, 106, figure 1), wherein a first portion (outer 108-figure 2) of the bus structure that extends from the edge of the PCB forms a plurality of electrically separate contacts of a connector and a second

Applicants : Scott D. Brandenburg et al.  
Appln. No. : 10/624,063  
Page : 12

portion (inner 108) of the bus structure that is integrated within the PCB couples each of the contacts to at least one conductive trace of the PCB through plated holes (132, column 9, line 54)” teaches against what the Examiner indicates is taught in the embodiments generally illustrated in Figs. 9-10. For at least this additional reason, dependent claim 5 and amended independent claim 9 are not anticipated by Rostoker et al., and should be allowable.

With respect to the rejection of amended claim 6, Applicants respectfully submit that Rostoker et al. fails to teach or suggest “wherein the connector housing formed by the overmolded plastic material is shaped to receive a body of a mating connector.” Rostoker et al. appears to be silent as to the shape of the plastic material generally illustrated in Figs. 9-10.

With respect to the rejection of amended dependent claims 8 and 15 as being anticipated by Rostoker et al., Applicants respectfully submit that Rostoker et al. fails to teach each and every element of the claimed invention for reasons similar to those discussed above with respect to the rejection of amended independent claims 1 and 9. More specifically, Rostoker et al. does not appear to teach or suggest “a second portion of the second integrated conductive bus structure that is laminated into the PCB as an internal layer of the PCB couples each of the second electrically conductive contacts to at least one conductive trace of the PCB through different plated holes.” For at least this additional reason, amended dependent claims 8 and 15 should likewise be allowable.

The Examiner also rejected claims 2-4, 10-13, 16-19, and 21 under 35 U.S.C. § 103(a) as being unpatentable over Rostoker et al., in view of Keyser. With respect to the rejection of amended independent claim 16, Applicants respectfully submit that the limitations of amended independent claim 16 would not have been rendered obvious in light of the combination of Rostoker et al. with Keyser. More specifically, the combination of Rostoker et al. with Keyser fails to teach or suggest “a filter block incorporated within an aperture formed in the PCB approximate the integrated bus structure.” Rostoker et al. and Keyser alone, or in combination, do not

Applicants : Scott D. Brandenburg et al.  
Appln. No. : 10/624,063  
Page : 13

appear to teach or suggest a filter block incorporated within an aperture formed in the PCB. For at least this reason, amended independent claim 16 could not have been obvious, and should be allowable. Because claims 17-21 depend from allowable independent claim 16, dependent claims 17-21 are likewise allowable for at least this reason.

By way of the foregoing discussion, Applicants have demonstrated that claims 1-21 are not anticipated by Rostoker et al., and would not have been rendered obvious in view of Rostoker et al., in combination with Keyser, or Bissey. Accordingly, the rejections of claims 1-21 under 35 U.S.C. §§ 102(b) and 103(a) should be withdrawn, which action is respectfully solicited.

Applicants submit that this amendment is fully responsive to the above-referenced Office Action, and that the claims are in condition for allowance, such allowance being respectfully requested.

### **CONCLUSION**

If the Examiner has any questions or comments with respect to this amendment, the Examiner is encouraged to contact the undersigned at 616/949-9610.

Respectfully submitted,

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Date

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